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"Welcome Shelter Near Trail's End"

✕ FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

RIO GRANDE DRAINAGE BASIN

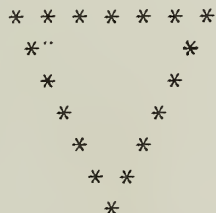
FEBRUARY 1, 1947

By

Division of Irrigation, Soil Conservation Service
United States Department of Agriculture
and
Colorado Agricultural Experiment Station

Data included in this report were obtained by the agencies named above in cooperation with the U. S. Forest Service, National Park Service, State Engineers of Colorado and New Mexico and other Federal, State and local organizations.

FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND IRRIGATION WATER FORECASTS
FOR
RIO GRANDE AND CANADIAN RIVER DRAINAGE BASINS



Report Prepared by
Division of Irrigation
Soil Conservation Service
and
Colorado Agricultural Experiment Station
Fort Collins Colorado

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February 1, 1947

WATER SUPPLY OUTLOOK

RIO GRANDE AND CANADIAN RIVER
DRAINAGE BASINS

The prospects for irrigation water supply for the Rio Grande Basin is slightly better than average and much better than a year ago. Snow cover is just above normal but reservoir storage is generally low. Precipitation has been slightly less than average. Soil moisture conditions are fair. Snow cover on the headwaters of the Pecos River is light and about the same as last year. Snow cover at the higher elevations on the Canadian River is about average.

RIO GRANDE

The snow cover on the mountains surrounding the San Luis Valley as shown by recent snow surveys averages two to three times that of last year at this time. The water content of the snow is 250 percent of last year but only 20 percent above the past eleven year average. There are 50 inches of snow on Wolf Creek Pass containing 16 inches of water. The maximum depth was measured at Summitville where there are 54 inches. There is no snow in the valley area and the precipitation has been slightly less than normal. Soil moisture conditions are reported as poor. Reservoir storage in the San Luis Valley is very low and is only about 40 percent of the past ten year average.

Similar snow conditions extend over the headwaters of the Chama River and on the Rio Grande Drainage in Northern New Mexico. Over this area in general the snow cover is about twice what it was a year ago. Precipitation at lower elevations has been deficient. Soil moisture is reported as poor and range conditions only fair. The El Vado reservoir contains only 24,500 acre-feet which is less than half of average and only one-third of that stored a year ago at this time.

The combined storage in Elephant Butte and Caballo reservoirs is down to about 819,000 acre-feet as compared to 1,330,000 on February 1, 1946. Precipitation in the lower Rio Grande Valley in New Mexico has been above normal. Soil moisture and crop conditions are reported as good.

The snow cover on the headwaters of the Pecos River is light. It is much below average and about the same as last year. However, storage in the Alamogordo, McMillan and Avalon reservoirs is about 20 percent above last year and the stream flow in the Carlsbad area is above normal. Soil moisture and crop conditions are reported as good. Stream flow due to snow melt will be light if the snow conditions on the headwaters do not improve.

CANADIAN RIVER

On the tributaries to the Canadian River the snow cover is about twice what it was a year ago and slightly above normal. Conchas reservoir has in storage 370,500 acre-feet as compared to 320,000 a year ago. Soil moisture at Tucumcari is good but there has been considerable surface drying by wind. Crop and range conditions are fair.

SNOW SURVEYS AND IRRIGATION WATER FORECASTS
RIO GRANDE BASIN

STATUS OF RESERVOIR STORAGE, February 1, 1947

STREAM	RESERVOIR	USABLE CAPACITY 1000 A F.	THOUSANDS OF ACRE FEET IN STORAGE				10-year Ave. 1936-45
			About February 1,				
			1947	1946	1945	1944	
RIO GRANDE	Rio Grande	45.8	4.0	4.9	18.9	6.1	17.8
	Santa Maria	45.0	3.5	4.9	10.9	4.0	8.8
	Sanchez	103.2	5.9	6.1	9.5	13.6	16.4
	Terrace	17.7	2.6	1.4	3.2	1.8	3.4
	Continental	26.7	1.3	13.1	17.7	7.8	6.3
	Elephant Butte	2273.7	564.1	1099.6	1272.1	1220.6	1128.6
	Caballo	365.0	254.7	230.1	269.3	247.5	182.1
CHAMA RIVER	El Vado	226.0	24.5	87.2	88.2	34.0	60.7
CANADIAN RIVER	Conchas	600.0	370.6	322.5	345.2	287.3	246.8
PECOS RIVER	Alamogordo	148.0	44.6	24.0	37.9	42.0	73.9
	McMillan-Avalon	45.1	12.4	7.2	8.5	10.4	21.6

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SNOW SURVEYS AND IRRIGATION WATER FORECASTS
for
RIO GRANDE BASIN
February 1, 1947

SUMMARY OF FEBRUARY 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF
PREVIOUS YEARS BY WATERSHEDS

WATERSHEDS	Snow Depth		Water Content		Number Courses in Average	Snow Intensity		1947 Water Content in percent of	
	Eleven Year Avg.*	1946	Eleven Year Avg.*	1947		Eleven Year Avg.*	1946	Eleven Year Avg.*	1946
	In.	In.	In.	In.	Percent	Percent	Percent	Percent	
Rio Grande	24.5	14.6	5.9	6.3	24	24	21	107	210
South Fork	52.8	27.8	14.3	16.1	1	27	21	112	277
Upper Rio Grande	19.6	6.0	3.4	4.2	2	17	17	122	420
Alamosa River	35.2	22.7	7.4	9.3	2	21	16	126	251
Conejos River	34.2	19.9	8.6	9.9	2	25	23	115	215
Culebra River	25.2	14.2	6.0	7.7	1	24	22	128	248
Chama River	28.8	20.0	7.5	7.6	6	26	21	101	181
Rio Taos	18.7	11.6	5.3	6.2	1	28	27	117	200
Pueblo Creek	25.7	16.5	5.8	5.9	2	23	23	102	155
Pecos River	17.8	10.0	4.1	2.2	3	23	20	54	110
Canadian River	21.9	13.9	5.0	5.3	3	23	22	106	170

*Some for shorter periods

*Some for shorter periods

P R E C I P I T A T I O N D A T A

WATERSHED	STATE	Precipitation October 1 to January 31	Departure from Normal	Precipitation* January	Departure from Normal
		Inches	Inches	Inches	Inches
Canadian	New Mexico	3.66	+0.88	0.19	-0.17
Rio Grande	Colorado	4.11	+0.65	0.75	-0.10
Rio Grande (N)	New Mexico	4.37	+0.22	0.68	-0.28
Rio Grande (S)	New Mexico	2.38	-0.26	0.48	-0.03
Pecos	New Mexico	40.2	+0.93	0.71	+0.16

Precipitation during January was below normal except on the watershed of the Pecos. The accumulated precipitation since October 1 was above normal for all watersheds except the Southern Rio Grande.

*January precipitation tentative.

RIO GRANDE IRAINAGE SNOW SURVEYS
February 1, 1947

DRAINAGE BASIN and SNOW COURSE	LOCATION				SNOW COVER MEASUREMENTS						
	No. and State	Sec. or Lat.	Twp. or Lat.	Range or Long.	Elev.	Date of Survey	Snow Depth (Inches)	Water Content (Inches)		Years of Record	Past Record Av. Water Content (Inches)
								1947	1946		
						RIO GRANDE					
Wolf Creek Pass	26 Colo.	4	37N	2E	10000	1/27	50.2	16.1	5.8	15.5	14.3
Upper Rio Grande	27 "	13	40N	4W	9350	1/31	27.8	5.2	1.0	3.5	3.7
Silver Lakes	47 "	15	36N	5E	9600	1/31	25.7	4.7	2.6	3.7	3.5
River Springs	49 "	25	33N	6E	9300	2/1	24.4	6.5	2.4	5.9	4.4
LaVeta Pass #2	74 "	22	28S	70W	9300	2/3	26.0	7.0	3.3	5.7	4.6
Summitville	76 "	30	37N	4E	11500	2/1	53.9	14.0	4.8	9.2	11.3
Cumbres Pass #2	77 "	17	32N	5E	10000	2/1	44.4	13.3	6.8	16.6	12.8
Santa Maria	80 "	8	41N	2W	9100	2/1	18.4	3.3	0.9	2.8	3.1
Culebra	82 "		37.2N	105.2W	10000	2/1	29.6	7.7	3.1	7.8	6.0
Fort Garland	84 "	13	29N	72W	8200	2/2	6.9	1.3	0.0	2.6	1.8
Red River	1 N.Mex.	29	28N	15E	9500	2/3	18.5	7.0	3.3	3.8	5.6
Taos Canyon	2 "	10	25N	15E	9000	2/1	19.3	6.2	3.1	6.6	5.3
Aspen Grove	4 "	12	18N	10E	9100	1/31	11.1	1.8	2.8	5.7	4.4
Lee Ranch	5 "	3	18N	4E	9050	1/31	20.7	4.3	1.8	6.2	5.2
Canjilon	6 "	4	26N	6E	9500	1/31	40.7	13.2	8.7	16.3	12.2
Hematite Park*	9 "	8	28N	15E	9500	1/31	16.5	4.1	1.7	5.2	3.5
Tres Ritos	12 "	23	22N	13E	9000	1/31	17.9	4.8	2.7	4.6	4.7
Pay Role	15 "	16	28N	7E	9700	1/31	30.9	7.8	2.2	7.8	6.5
Jicarilla	16 "	9	29N	1W	8500	2/6	11.9	1.9	2.1	3.0	3.3
Chama Divide	17 "		36.9N	106.7W	7750	1/31	11.9	2.8	1.9	5.3	4.2
Chamita	18 "		36.9N	106.7W	8500	1/31	26.2	6.5	3.3	9.8	6.1
Cordova	19 "	22	22N	13E	10100	2/1	29.3	7.0	4.9	8.0	6.9
Parchuela #2	20 "	27	19N	12E	8300	1/31	8.2	1.8	1.5	4.5	3.2
Big Tesuque	21 "	17	18N	11E	10000	2/1	13.2	3.0	1.8	8.2	4.8

*On adjacent drainage

RIO GRANDE DRAINAGE SNOW SURVEYS
February 1, 1947

DRAINAGE BASIN and SNOW COURSE	LOCATION					SNOW COVER MEASUREMENTS							
	No. and State	Sec.	Twp. or Lat.	Range or long.	Elev.	Date of Survey	Snow Depth (Inches)	Water Content (Inches)			Years of Record	Past Record Av. Water Content (Inches)	
								1947	1946	1945			
RIO GRANDE TRIBUTARIES IN SAN LUIS VALLEY													
SOUTH FORK RIO GRANDE													
Wolf Creek Pass	26 Colo.	4	37N	2E	10000	1/27	50.2	16.1	5.8	15.5	8		14.3
UPPER RIO GRANDE													
Upper Rio Grande	27 Colo.	13	40N	4W	9350	1/31	27.8	5.2	1.0	3.5	8		3.7
Santa Maria	80 "	8	41N	2W	9700	2/1	18.4	3.3	0.9	2.8	9		3.1
CONCEJOS RIVER													
River Springs	49 Colo.	25	33N	6E	9300	2/1	24.4	6.5	2.4	5.9	7		4.4
Cumbres Pass* #2	77 "	17	32N	5E	10000	2/1	44.4	13.3	6.8	16.6	9		12.8
ALAMOSA RIVER													
Silver Lakes	47 Colo.	15	36N	5E	9600	1/31	25.7	4.7	2.6	3.7	8		3.5
Summitville	76 "	30	37N	4E	11500	2/1	53.9	14.0	4.8	9.2	9		11.3
CULEBRA RIVER													
Culebra	82 Colo.		37.2N	105.2W	10000	2/1	29.6	7.7	3.1	7.8	8		6.0
RIO GRANDE TRIBUTARIES IN NEW MEXICO													
CHAMA RIVER													
Cumbres Pass #2	77 Colo.	17	32N	5E	10000	2/1	44.4	13.3	6.8	16.6	9		12.8
Canjilon	6 N. Mex.	4	26N	6E	9500	1/31	40.7	13.2	8.7	16.3	8		12.2
Pay Role	15 "	16	28N	7E	9700	1/31	30.9	7.8	2.2	7.8	7		6.5
Jicarilla	16 "	9	29N	1W	8500	2/6	11.9	1.9	2.1	3.0	8		3.3
Chama Divide	17 "		36.9N	106.7W	7750	1/31	11.9	2.8	1.9	5.3	8		4.2
Chamita	18 "		36.9N	106.7W	8500	1/31	26.2	6.5	3.3	9.8	5		6.1

*On adjacent drainage

The following organizations cooperate in the snow surveys and irrigation water supply forecasts for the Colorado, Missouri-Arkansas and Rio Grande watersheds by furnishing funds or services.

STATE

Colorado State Engineer
Wyoming State Engineer
Utah State Engineer
New Mexico State Engineer
Montana State Engineer
Nebraska State Engineer
Colorado Experiment Station
Colorado Extension Service
Montana Experiment Station
Utah Experiment Station

FEDERAL

Department of Agriculture
Forest Service
Soil Conservation Service
Department of Interior
Bureau of Reclamation
Indian Service
Geological Survey
National Park Service
Department of Commerce
Weather Bureau
War Department
Army Engineer Corps

PUBLIC UTILITIES

Colorado Public Service Company
Western Colorado Power Company
Montana Power Company
Denver and Rio Grande Western R. R. Company

MUNICIPALITIES

City of Bozeman
City of Denver
City of Boulder

WATER USERS ORGANIZATIONS

Poudre Valley Water Users' Association
Arkansas Valley Ditch Association
Colorado River Water Conservation District

IRRIGATION PROJECTS

Farmers Reservoir and Irrigation Company
San Luis Valley Irrigation District
Santa Maria Reservoir Company
Costilla Land Company
Uncompahgre Valley Water Users' Association
Wyoming Development Company
Goshen Irrigation District
Kendrick Project
Pathfinder Irrigation District
Salt River Valley Water Users' Association
San Carlos Irrigation and Drainage District
Twin Lakes Reservoir and Canal Company

Many other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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